

WHAT IS CLAIMED IS:

1. A heating belt comprising a flexible support coated with a composite material, the composite material comprising a polymer and inductively-heatable particles.
2. The heating belt of claim 1, wherein the polymer forms a matrix phase in which the inductively-heatable particles are distributed.
3. The heating belt of claim 1, further comprising a layer overlying the polymer.
4. The heating belt of claim 1, wherein the inductively-heatable particles comprise ferromagnetic particles.
5. The heating belt of claim 1, wherein the inductively-heatable particles are selected from a group consisting of SrF, zircalloy, and compounds stoichiometrically having two divalent cations combined with one of $\text{Ba}_1\text{Fe}_{16}\text{O}_{26}$, $\text{Ba}_2\text{Fe}_{12}\text{O}_{22}$, and $\text{Ba}_3\text{Fe}_{24}\text{O}_{41}$.
6. The heating belt of claim 5, wherein the divalent cations are selected from the group consisting of Mg, Co, Mn, and Zn.
7. The heating belt of claim 1, wherein the inductively-heatable particles have a Curie temperature.
8. The heating belt of claim 7, wherein the Curie temperature of the inductively-heatable particles is between 60 °C and 325 °C.
9. The heating belt of claim 1, wherein the inductively-heatable particles comprise between about 10 volume percent and about 50 volume percent of the composite material.

10. The heating belt of claim 1, wherein the polymer has a carbon-based chain structure or a silicone based chain structure.

11. The heating belt of claim 1, wherein the polymer has a carbon-based chain structure and is selected from the group consisting of poly(etheretherketone) (PEEK), polyetherketoneketone (PEKK), poly(etherimide) (PEI), polyphenylene sulfide (PPS), poly(sulfone) (PSU), polyethylene terephthalate (PET), polyester, polyamide (PA), polypropylene (PP), polyurethane (PU), polyphenylene oxide (PPO), polycarbonate (PC), PP/MXD6™, PP/ethylene vinyl alcohol (EVOH), polyethylene (PE), fluorinated ethylene propylene (FEP), polytetrafluoroethylene (PTFE), polyimide, polyamide-imide (PAI), tetrafluoroethylene (TFE), hexafluoropropylene (HFP), perfluoropropyl or perfluoromethyl vinyl ether, homo and copolymers having chlorotrifluoroethylene (CTFE), homo and copolymers having vinylidene fluoride (VF₂), homo and copolymers having vinyl fluoride (VF), and combinations thereof.

12. The heating belt of claim 1, wherein the polymer comprises a polyimide.

13. The heating belt of claim 1, wherein the polymer comprises a fluorinated polymer.

14. The heating belt of claim 13, wherein the fluorinated polymer comprises at least one material from the group consisting of polytetrafluoroethylene (PTFE) and fluorinated ethylene propylene (FEP), perfluoroalkoxy (PFA), and combinations thereof.

15. The heating belt of claim 1, wherein the polymer comprises silicone.

16. The heating belt of claim 1, wherein the flexible support comprises a woven fabric.

17. The heating belt of claim 16, wherein the fabric comprises at least one fibrous material from the group consisting of glass, Kevlar®, aramids, and polyesters.

18. The heating belt of claim 1, wherein the heating belt is a closed loop belt.

19. The heating belt of claim 1, wherein the heating belt is a cooking belt.
20. The heating belt of claim 1, wherein the heating belt is an industrial sealing belt.
21. The heating belt of claim 20, wherein the industrial heating belt is a side sealing belt.
22. A heating component comprising a composite material, the composite material comprising a fluorinated polymer and inductively-heatable particles.
23. The heating component of claim 22, wherein the fluorinated polymer is selected from the group consisting of polytetrafluoroethylene (PTFE), fluorinated ethylene propylene (FEP), perfluoroalkoxy (PFA), tetrafluoroethylene (TFE), hexafluoropropylene (HFP), or perfluoropropyl or perfluoromethyl vinyl ether, homo and copolymers having chlorotrifluoroethylene (CTFE), homo and copolymers having vinylidene fluoride (VF₂), homo and copolymers having vinyl fluoride (VF), and combinations thereof.
24. The heating component of claim 22, wherein the fluorinated polymer comprises polytetrafluoroethylene (PTFE).
25. The heating component of claim 24, wherein the fluorinated polymer comprises blends of polytetrafluoroethylene (PTFE) with polymeric modifiers selected from the group consisting of tetrafluoroethylene (TFE), hexafluoropropylene (HFP), or perfluoropropyl or perfluoromethyl vinyl ether, homo and copolymers having chlorotrifluoroethylene (CTFE), homo and copolymers having vinylidene fluoride (VF₂), homo and copolymers having vinyl fluoride (VF), and combinations thereof.
26. The heating component of claim 22, wherein the fluorinated polymer comprises fluorinated ethylene propylene (FEP).

27. The heating component of claim 22, wherein the fluorinated polymer comprises perfluoroalkoxy (PFA)

28. The heating component of claim 22, wherein the inductively-heatable particles comprise between about 10 volume percent and about 50 volume percent of the composite material.

29. The heating component of claim 22, wherein the heating component is a generally planar sheet defining a cooking surface.

30. The heating component of claim 22, further comprising a support over which the composite material is coated, the support comprising a rigid substrate.

31. A heating component comprising a composite material, the composite material comprising a silicone polymer and inductively-heatable particles.

32. The heating component of claim 31, wherein the silicone polymer comprises vinyl terminated polydimethylsiloxane polymers.

33. The heating component of claim 31, wherein the inductively-heatable particles comprise between about 10 volume percent and about 50 volume percent of the composite material.

34. The heating component of claim 31, wherein the heating component is a cooking belt.

35. The heating component of claim 31, wherein the heating component is an industrial sealing belt.

36. The heating component of claim 31, wherein the heating component is a generally planar sheet defining a cooking surface.

37. The heating component of claim 31, further comprising a support over which the composite material is coated.

38. The heating component of claim 37, wherein the support comprises a fabric.

39. The heating component of claim 38, wherein the fabric comprises at least one fibrous material from the group consisting of glass, Kevlar®, aramids, and polyesters.

40. A system for heating an article, the system comprising:
a heating belt comprising a flexible support coated in a composite material, the composite material comprising a polymeric matrix and inductively-heatable particles; and
a field generator for inducing a field about the heating belt to heat the inductively-heatable particles.

41. The system of claim 40, wherein the article is a food item.

42. The system of claim 40, wherein the article is a package.

43. The system of claim 40, wherein the system is an industrial side sealing apparatus.

44. The system of claim 40, wherein the system is an industrial grill.

45. A method for heating an article, the method comprising:
placing the article in proximity to a heating belt, the heating belt comprising a flexible support coated in a composite material, the composite material comprising a polymeric matrix and inductively-heatable particles; and
inducing a field about the heating belt, the inductively-heatable particles heating in the presence of the field, thereby heating the article.

46. The method of claim 45, wherein the article is on the heating belt.

47. The method of claim 45, wherein the article is a food item.

48. The method of claim 45, wherein the article is a package.

49. The method of claim 45, wherein the flexible support comprises glass fibers.

50. The method of claim 45, wherein the polymer matrix is a fluorinated polymer, silicone, or polyimide.